

# MINIMO: THE VIRTUAL BANKING SOLUTION USING “KODE”

Sanidh Patil, Eshun Sharma

U.G. Student, Department of Computer Engineering,  
International Institute of Information Technology, Pune, Maharashtra, India

## ABSTRACT

*In our day to day lives we come across situations like where payment of an exact sum of money may not be possible. For Instance a person commutes in a bus but he might not always have the exact cash, to make things more convenient and to make transactions less complicated our application plans to deal with such situations by generating a valid transaction code to generate e-tickets thus saving paper and time. Many a times we also feel the requirement to club multiple transactions so as to perform a single transaction, thus enabling everyone to contribute a certain sum of money for making a larger transaction. The MiniMo handles such situations with ease and security.*

**KEYWORDS:** Transactions, Authentication, Security, Functionality, Validity, Virtual-money, Encryption, Algorithm, Automated, KODE.

## I. INTRODUCTION

The MiniMo is a self-contained product. It will act like a virtual wallet having virtual money in it. So if a person is carrying his phone with MiniMo installed in it then he doesn't need to worry about carrying his wallet. MiniMo is user-friendly, 'quick to learn' and reliable software. It is intended to be a stand-alone product and is not dependent on the availability of other software. It should run on any version of android devices.

The main motive behind the development of this project is to make transactions easier and convenient and simultaneously provide all the necessary security for doing the same. The MiniMo is a small effort that aims to make transactions simpler, sophisticated and portable since the banking options are made ready at the tip of your fingertips by using just a mobile phone. The users of the MiniMo System would be anyone who wishes to make transactions with portability the primary objective. Users don't need to have any technical expertise, if a person knows how to use an android phone, he can easily use MiniMo.

## II. FUNCTIONALITY

The users can login into their respective wallets using the website. Since the website designed is responsive it can be conveniently loaded and viewed on any web browser and on a screen of any resolution.

Actions like sending and receiving money can be easily done using the MiniMo System without hassle. A further option of grouping sub-transactions to make one single transaction is also available. A random code for every transaction is generated which is valid only for a short duration of time, within which the necessary authentication for the transaction should be done. One can use any device with the app or login to the website to use his account.

The system uses the concept of virtual money thus making it easy to revert the necessary changes if in case of any mishaps.

### III. SECURITY ASPECTS OF KODE

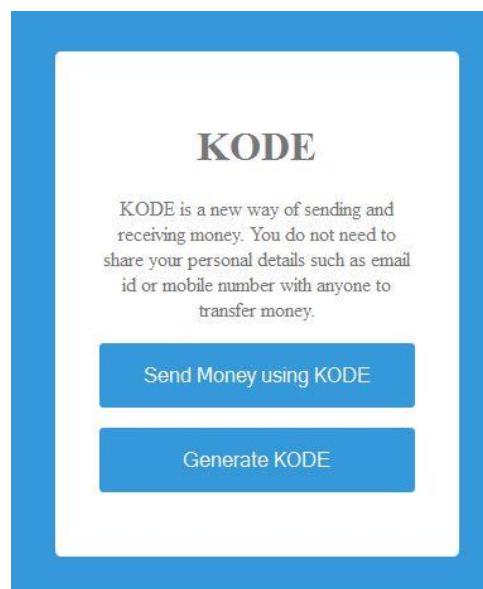
The system intends to use 2 way authentications. The following are few security aspects:

- The first authentication is done when opening the app or logging in to the website.
- The second authentication is while making the transaction.
- A one-time transaction ID("KODE") is generated for each transaction for a small time window.
- The usage of SHA1 hashing algorithm.
- The generated "KODE" needs to be entered at the receiver's end rather than the sender's end thus eliminating theft and making transactions more secure.
- Every transaction will have its own unique "KODE"
- It is nearly impossible to crack it down using brute force since it is a combination of 26 English alphabets and digits from 0-9 thus making it an unpredictable sequence of 1883700 combinations, which is nearly impossible to predict in only 300 seconds.

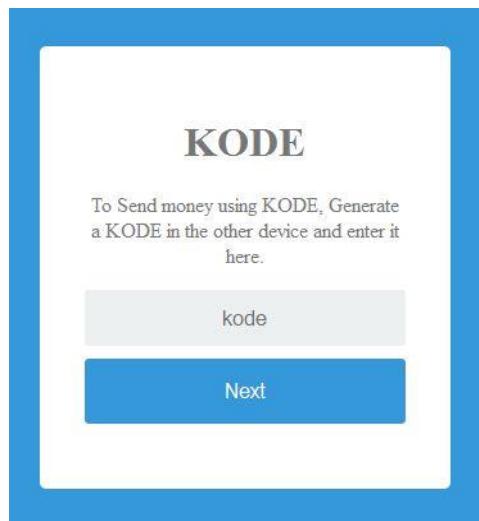
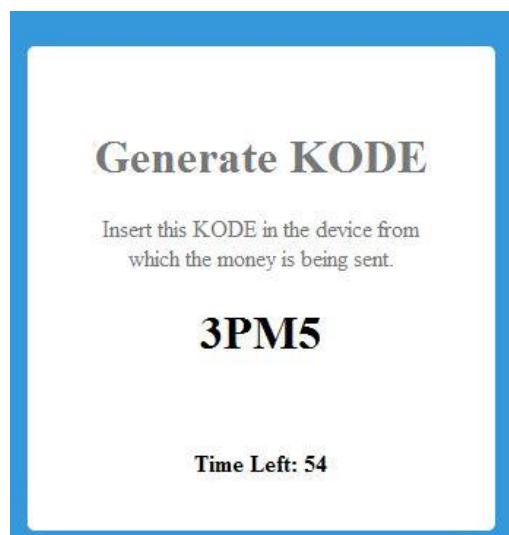
### IV. MONEY TRANSFER WITH THE HELP OF "KODE"

The "KODE" is a very secure method for money transfer. It works in the following manner:

- On the receiver end a random alpha-numeric combination will be generated for a time window of 300 seconds.
- The sender simply has to enter this "KODE" in the field provided.
- This is very fast since only four characters need to be identified.
- Due to "KODE", there is no need of sharing the personal details of the users such as telephone number or email ids.
- The usage of "KODE" ensures the active interaction between the sender and the receiver thus making it safe, error free, and the transaction destination specific.
- The application of "KODE" is diverse and can be widely used.



**Fig.1** The main KODE window

**Fig.2** The window on the senders end**Fig.3** The generated KODE on the receiver end

#### Algorithm for KODE

- 1) Generation of KODE by Receiver

```

Num = 0123456789
Str = abcdefghijklmnopqrstuvwxyz
. is concatenation
StringGenerated = Generated String

```

```

String = Num . Str
For( I = 1 to 4)
GeneratedString .= Random(String)

```

Hence the Alphanumeric 4 Characters KODE is “GeneratedString”.

- 2) Storing KODE in Database

If(KODE exists in database and is active)

Generate another kode

If(KODE exist in database and is inactive)  
Modify KODE information

If(KODE does not exist in database)  
Store KODE, with KODE information

3) Scanning of KODE by Sender

Insert KODE in Website

4) Checking of KODE on Server Side

If(KODE Does not exist in database)  
Show KODE Doesnot exist error

If(KODE exist in database and timed out)  
Show KODE timed out error

If(KODE exist in database and is used)  
Show KODE Used

If(KODE exist in database)  
Show user the amount to send

5) Sender Confirms and the Money is sent

## V. PRODUCT PERSPECTIVES

The MiniMo is a self-contained product. It will act like a virtual wallet having virtual money in it. So if a person is carrying his phone with MiniMo installed in it then he doesn't need to worry about carrying his wallet. MiniMo is user-friendly, 'quick to learn' and reliable software. It is intended to be a stand-alone product and is not dependent on the availability of other software. It should run on any version of android devices.

## VI. PRODUCT FUNCTIONALITY

The major functions of the project,

- Send Money: User should be able to send money,
  - The money can be sent through by ID that is the Phone number or Email id.
  - The money can also be sent by generating a unique transaction ID. User should enter the amount of money to send. When sending money, the sender should enter a transaction password that the user created while registering.
- Receive Money: User should be able to receive money. The money can be received by providing the unique transaction ID from sender's mobile phone.
- Check wallet: Wallet should show the total available money at the current time. Wallet should also have an option to load money from credit card, debit card, net banking etc.
- Check transaction history: Transaction history should contain logs of all the transactions that took place in that account. It should have details like Transaction id, date, amount, status .A transaction should be:

- Successful, when money is transferred from one account to another.
- Failed, in case of system error or timeout. In process, if the transaction is occurring.
- Registration: The users should be able to register themselves via the app or the website, wherein the important authentication details and the necessary information regarding the user will be asked.
- Login: User should enter the password that user saved while registering. If the user fails to enter correct password for 5 times continuously an error message “authentication failure” would be displayed and would exit. A forgot password button will be there, on clicking the button it should ask the secret question that the user set while registering, if the answer to secret question is correct the password should be sent to user’s registered email id.
- Send and receive messages: An option to send messages from one user to another by entering email id or mobile number along with the message that is to be sent. After successful transaction the sender should get a pop asking for a message for the receiver.
- Contact support: Contact us should display a form for contacting the developers or the support team. The form should have,
  - Name
  - Contact number
  - Email
  - Query

## VII. USER CHARACTERISTICS

The users of the MiniMo System would be anyone who wishes to make their transactions with portability the primary objective. Users don't need to have any technical expertise, if a person knows how to use an android phone or any web browser in any handset; he/she can easily use MiniMo.

From business point of view there can be two types of users one is a merchant and other is consumer or customer. The merchant will have certain privileges like a unique ID that anyone can send any amount of money to and merchant can set automated messages to send when they receive money from the customer.

## VIII. ASSUMPTIONS AND DEPENDENCIES

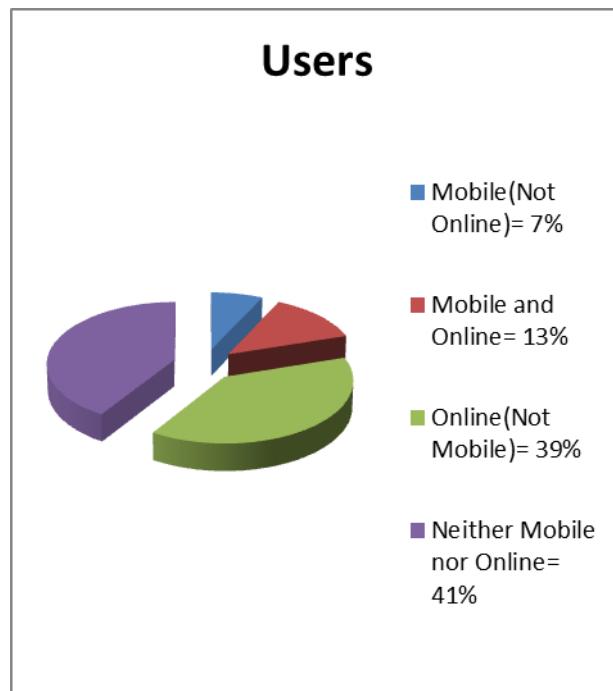
- The user should have an android phone with inbuilt camera.
- User should have an active data connection to communicate with the server.
- An active network connection should be available at the place where user is transferring money if not doing via WIFI.
- User should have an email id and that email id should be verifiable.

## IX. SCOPE AND FUTURE WORK

Primarily, the scope pertains to The MiniMo's features for making transactions convenient. It focuses on the functionality and the efficiency with which one can easily make use of the MiniMo System to make a transaction, and also the various other applications where the MiniMo System may find its use.

The MiniMo application is aimed at making transactions easy and quick without using actual money. The concept of virtual money will be used in MiniMo application. The money will be transferred from one MiniMo wallet to another by allocating a unique transaction ID.

Since mobile banking is an emerging trend in the society, many merchants as well as clients prefer it over the conventional transactions since it is quite hassle free and convenient. In the near future the system can be incorporated to handle crowd-funding, micro-transactions, peer-to-peer transfers, etc.

**Fig.4** A survey conducted by AITE Group 2011

## X. CONCLUSION

The MiniMo system can prove to be a very effective tool for transactions as it is sophisticated and doesn't demand much from the user. It has a very wide application while keeping in mind the minimalistic usage of resources (like paper and time). On overcoming the various security threats, the MiniMo System can prove quite advantageous and can be widely used, even for remote tasks like paying transport fares or to club sub-transactions.

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## AUTHORS

**Sanidh Arun Patil**, Bachelor of Engineering in Computer Engineering, University of Pune. Worked as the Secretary for IEEE Student's branch, International Institute of Information Technology, Pune. Software Developer at bookmyshow.com Loves AI and adaptive algorithms.



**Eshun Sharma**, Bachelor of Engineering in Information Technology, University of Pune. Worked as the Web Master for IEEE Student's branch, International Institute of Information Technology, Pune. Software Developer at bookmyshow.com has a fascination for design and loves cook web pages.

